CLAIMS

What is claimed:

1. A respiratory delivery system for at least assisting in introducing a first substance to pulmonary tissue, wherein said respiratory delivery system comprises:

at least one airflow inlet;

at least one outlet;

at least one airflow passage extending between said at least one airflow inlet and said at least one outlet;

at least one ejection actuator; and

at least one airflow regulation assembly adapted to sizably adjust a passage through which airflow is directed to achieve an airflow rate substantially independent of a magnitude of inhalation.

2. A respiratory delivery system, as claimed in Claim 1, wherein said respiratory delivery system is selected from the group consisting essentially of oral and nasal inhalers.

3. A respiratory delivery system, as claimed in Claim 1, wherein said first substance is selected from the group consisting essentially of liquid medicament and powdered medicament.

4. A respiratory delivery system, as claimed in Claim 1, wherein said at least one said ejection actuator is adapted to at least assist in discharging said first substance into said airflow.

5. A respiratory delivery system, as claimed in Claim 1, wherein said at least one said ejection actuator comprises multiple said ejection actuators.

6. A respiratory delivery system, as claimed in Claim 1, wherein each said ejection actuator is independently actuatable.

7. A respiratory delivery system, as claimed in Claim 1, wherein said at least one said ejection actuator comprises first and second groups of said ejection actuators, wherein each of said first and second groups comprises a plurality said ejection actuators, and wherein said first group is independently actuatable with respect to said second group.

8. A respiratory delivery system, as claimed in Claim 1, wherein said at least one said airflow regulation system is disposed at or near said at least one said airflow inlet of said airflow conduit.

9. A respiratory delivery system, as claimed in Claim 1, wherein said at least one said airflow passage comprises a flow regulation port, wherein a first inner diameter of said flow regulation port disposed toward said at least one said airflow inlet is larger than a second inner diameter of said flow regulation port disposed toward said at least one outlet.

10. A respiratory delivery system, as claimed in Claim 1, wherein side walls of said at least one said airflow passage linearly converge in a direction of said airflow toward said at least one said outlet.

11. A respiratory delivery system, as claimed in Claim 10, wherein each said airflow regulation assembly comprises a baffle comprising first and second major surfaces disposed substantially perpendicularly to a direction of said airflow and an outer periphery, wherein said outer periphery of said baffle is separated from said side walls by a first distance when said baffle is in a first position disposed toward said at least one said airflow inlet, and wherein said outer periphery of said baffle is separated from said side walls by a second distance less than said first distance when said baffle in a second position disposed toward said at least one said outlet.

12. A respiratory delivery system, as claimed in Claim 1, wherein each said airflow regulation assembly comprises a baffle comprising first and second major surfaces disposed substantially perpendicularly to a direction of said airflow.

13. A respiratory delivery system, as claimed in Claim 12, wherein a first position of said baffle in response to a first inhalation force is defined by said baffle being separated from said at least one said outlet by a first distance, and wherein a second position of said baffle in response to a second inhalation force greater than said first inhalation force is defined by said baffle being separated from said at least one said outlet by a second distance less than said first distance.

14. A respiratory delivery system, as claimed in Claim 12, wherein a first position of said baffle in response to a first inhalation force is defined by said baffle being separated from said at least one airflow inlet by a first distance, and wherein a second position of said baffle in response to a second inhalation force greater than said first inhalation force is defined by said baffle being separated from said airflow inlet by a second distance greater than said first distance.

15. A respiratory delivery system, as claimed in Claim 12, wherein said baffle avoids inhibition of said airflow in a first position disposed toward said at least one said airflow inlet, and wherein said baffle at least partially inhibits said airflow in a second position disposed toward said at least one said outlet.

16. A respiratory delivery system, as claimed in Claim 12, wherein said baffle is free of holes.

17. A respiratory delivery system, as claimed in Claim 12, wherein each said airflow regulation assembly comprises a biasing member comprising first and second ends, wherein said first end is disposed in contact with said baffle, wherein said second end is disposed in a fixed position relative to said at least one said airflow passage, and wherein said biasing member exerts a biasing force on said baffle in a substantially opposite direction of a direction of said airflow.

18. A respiratory delivery system, as claimed in Claim 17, wherein a minimum inhalation force of a user is substantially equal in magnitude to said biasing force which is exerted on said baffle by said biasing member.

19. A respiratory delivery system, as claimed in Claim 18, wherein a normal inhalation force of said user is greater than said minimum inhalation force of said user, and wherein said baffle is displaced toward said user when under effect of said normal inhalation force.

20. A respiratory delivery system, as claimed in Claim 17, wherein said biasing member is a spring.

21. A respiratory delivery system, as claimed in Claim 1, further comprising at least one airflow monitoring assembly adapted to monitor flow rate data.

22. A respiratory delivery system, as claimed in Claim 21, wherein said at least one said airflow monitoring assembly is communicatively interconnected with said at least one said airflow regulation assembly, wherein said at least one said airflow monitoring assembly sends signals relating to said flow rate data to said at least one said airflow regulation assembly.

23. A respiratory delivery system, as claimed in Claim 22, wherein said at least one said airflow regulation assembly comprises at least one passage adjustor, wherein said at least one said passage adjustor adjusts a size of said at least one said airflow passage in response to said signals.

24. A method of controlling airflow in a respiratory delivery system, the method comprising the steps of:

disposing a movable baffle within a tapered portion of an airflow passage of said respiratory delivery system, wherein said tapered portion of said airflow passage converges toward an airflow outlet of said respiratory delivery system;

biasing said baffle away from said airflow outlet of said respiratory delivery system baffle;

adjusting a passage size of said tapered portion of said airflow passage using an inhalation force acting in an opposite direction of a biasing force indicative of said biasing step, wherein said passage size is defined by a distance between inner walls of said tapered portion of said airflow passage and an outer periphery of said baffle.

25. A method, as claimed in Claim 24, wherein said passage size remains effectively unchanged when said inhalation force is less than or substantially equal to said biasing force.

26. A method, as claimed in Claim 24, wherein said passage size is reduced when said inhalation force is greater than said biasing force.

27. A method, as claimed in Claim 24, wherein said passage size is substantially independent of said inhalation force when said inhalation force is less than or substantially equal to said biasing force.

28. A method, as claimed in Claim 24, wherein said passage size is inversely proportional to said inhalation force, when said inhalation force is greater than said biasing force.

29. A method, as claimed in Claim 24, further comprising monitoring airflow data of said respiratory delivery system.

30. A method, as claimed in Claim 29, further comprising performing said adjusting step in response to signals generated during said monitoring step.

31. A method of promoting delivery of a predetermined amount of a first substance to pulmonary tissue, the method including the steps of:

determining a range of inhalation forces for an individual, wherein said range of inhalation forces comprises a minimum inhalation force at least generally indicative of minimum respiratory functions for said individual and a normal inhalation force;

providing a respiratory delivery system comprising a movable baffle within an airflow passage of said respiratory delivery system;

effectively avoiding occlusion of said airflow passage when said normal inhalation force is substantially equal to said minimum inhalation force; and

at least partially obstructing said airflow passage when said normal inhalation force is at least some magnitude greater than said minimum inhalation force.

32. A method, as claimed in Claim 31, further comprising utilizing a biasing member to provide a biasing force against said movable baffle in a substantially opposite direction of said inhalation forces.

33. A method, as claimed in Claim 32, wherein said minimum inhalation force of said effectively avoiding step is substantially equal in magnitude to said biasing force which is exerted on said movable baffle by said biasing member.

34. A method, as claimed in Claim 32, wherein said normal inhalation force of said at least partially obstructing step is greater in magnitude than said biasing force which is exerted on said movable baffle by said biasing member displacing said baffle in a direction of said normal inhalation force.

35. A method, as claimed in Claim 31, further comprising monitoring airflow data of said respiratory delivery system.

36. A method, as claimed in Claim 35, further comprising performing one of said effectively avoiding step and said at least partially obstructing step in response to signals generated during said monitoring step.